

Supplementary table 1 Risk factors related to AV based on univariate logistic regression analysis

Variables	Case (n=145)	Control (n=145)	OR (95% CI)	P-Value
Nationality				
The Han nationality	139 (95.9)	140 (96.6)	1	
The minority nationality ^a	6 (4.1)	5 (3.4)	1.209 (0.360–4.052)	0.759
Marital status				
Married	115 (79.3)	129 (89.0)	1	
Unmarried	30 (20.7)	16 (11.0)	2.103 (1.091–4.056)	0.026
Education level				
High school or less	52 (35.9)	19 (13.1)	1	
College or above	93 (64.1)	126 (86.9)	0.270 (0.150–0.486)	0.000
Woman's occupation				
Manual labor	19 (13.1)	13 (9.0)	1	
Professional	91 (62.8)	112 (77.2)	0.556 (0.261–1.186)	0.129
Not working	35 (24.1)	20 (13.8)	1.197 (0.490–2.928)	0.693
Partner's occupation				
Manual labor	34 (23.4)	23 (15.9)	1	
Professional	97 (66.9)	111 (76.6)	0.591 (0.326–1.072)	0.083
Not working	14 (9.7)	11 (7.6)	0.861 (0.333–2.228)	0.758
Age at menarche (years)				
≤ 13	22 (15.2)	41 (28.3)	1	
13–15	119 (82.1)	94 (64.8)	2.359 (1.315–4.232)	0.004
> 15	4 (2.8)	10 (6.9)	0.745 (0.209–2.654)	0.650
Regular menstruation				
No	19 (13.1)	14 (9.7)	1	
Yes	126 (86.9)	131 (90.3)	0.709 (0.341–1.474)	0.357
Menstrual blood volume				
Medium	117 (80.7)	124 (85.5)	1	
Heavy	11 (7.6)	9 (6.2)	1.295 (0.518–3.239)	0.580
Light	17 (11.7)	12 (8.3)	1.501 (0.688–3.278)	0.308
Dysmenorrhea				
No	98 (67.6)	92 (63.4)	1	
Yes	47 (32.4)	53 (36.6)	0.832 (0.513–1.352)	0.459
History of pregnancy				
No	44 (30.3)	40 (27.6)	1	
Yes	101 (69.7)	105 (72.4)	0.874 (0.526–1.453)	0.605
History of delivery				
No	71 (49.0)	56 (38.6)	1	
Yes	74 (51.0)	89 (61.4)	0.656 (0.411–1.046)	0.076

History of miscarriage					
No	75 (51.7)	70 (48.3)	1		
Yes	70 (48.3)	75 (51.7)	0.871 (0.550–1.381)	0.557	
Uses contraceptive methods					
No	11 (7.6)	13 (9.0)	1		
Yes	134 (92.4)	132 (91.0)	1.200 (0.519–2.774)	0.670	
Consistent condom use					
No	114 (78.6)	87 (60.0)	1		
Yes	31 (21.4)	58 (40.0)	0.408 (0.243–0.685)	0.001	
Has used oral contraceptives					
No	122 (84.1)	116 (80.0)	1		
Yes	23 (15.9)	29 (20.0)	0.754 (0.412–1.379)	0.359	
Has used combined oral contraceptives					
No	142 (97.9)	142 (97.9)	1		
Yes	3 (2.1)	3 (2.1)	1.000 (0.198–5.039)	1.000	
Has used progestin-only pills					
No	125 (86.2)	119 (82.1)	1		
Yes	20 (13.8)	26 (17.9)	0.732 (0.388–1.381)	0.336	
Has used IUD					
No	115 (79.3)	125 (86.2)	1		
Yes	30 (20.7)	20 (13.8)	1.630 (0.877–3.031)	0.122	
Use of IUD					
No	120 (82.8)	138 (95.2)	1		
Yes	25 (17.2)	7 (4.8)	4.107 (1.715–9.834)	0.002	
Duration of IUD use					
> 6 months	24 (96.0)	6 (85.7)	1		
≤ 6 months	1 (4.0)	1 (14.3)	0.250 (0.014–4.601)	0.395	
Natural family planning method					
No	91 (62.8)	93 (64.1)	1		
Yes	54 (37.2)	52 (35.9)	1.061 (0.658–1.712)	0.807	
Sterilization					
No	143 (98.6)	143 (98.6)	1		
Yes	2 (1.4)	2 (1.4)	1.000 (0.139–7.197)	1.000	
History of genital tract infections					
No	83 (57.2)	90 (62.1)	1		
Yes	62 (42.8)	55 (37.9)	1.222 (0.764–1.955)	0.402	
History of vaginitis					
No	86 (59.3)	91 (62.8)	1		
Yes	59 (40.7)	54 (37.2)	1.156 (0.721–1.854)	0.547	
History of AV					
No	139 (95.9)	144 (99.3)	1		
Yes	6 (4.1)	1 (0.7)	6.216 (0.739–52.294)	0.093	

History of sexually transmitted infections				
No	136 (93.8)	137 (94.5)	1	
Yes	9 (6.2)	8 (5.5)	1.133 (0.425–3.024)	0.803
Age at first sexual intercourse				
≤ 18	7 (4.8)	3 (2.1)	1	
> 18	138 (95.2)	142 (97.9)	0.416 (0.106–1.643)	0.211
Frequency of sex per month				
≤ 2	51 (35.2)	57 (39.3)	1	
3–5	59 (40.7)	64 (44.1)	1.030 (0.614–1.729)	0.910
≥ 6	31 (21.4)	24 (16.6)	1.444 (0.751–2.774)	0.271
≥ 2 sexual partners in the last 6 months				
No	143 (98.6)	143 (98.6)	1	
Yes	1 (0.7)	2 (1.4)	0.500 (0.045–5.576)	0.573
Oral sex				
No	126 (86.9)	129 (89.0)	1	
Yes	19 (13.1)	16 (11.0)	1.216 (0.598–2.470)	0.589
Anal sex				
No	144 (99.3)	143 (98.6)	1	
Yes	1 (0.7)	2 (1.4)	0.497 (0.045–5.537)	0.569
Sex during menses				
No	76 (52.4)	135 (93.1)	1	
Yes	5 (3.4)	10 (6.9)	0.888 (0.293–2.694)	0.834
Smoking habits				
No	138 (95.2)	141 (97.2)	1	
Yes	7 (4.8)	4 (2.8)	1.788 (0.512–6.245)	0.362
Alcohol consumption				
No	119 (82.1)	130 (89.7)	1	
Yes	26 (17.9)	15 (10.3)	1.894 (0.957–3.747)	0.067
History of chronic disease				
No	115 (79.3)	124 (85.5)	1	
Yes	30 (20.7)	21 (14.5)	1.540 (0.835–2.843)	0.167
History of intrauterine surgery				
No	78 (53.8)	76 (52.4)	1	
Yes	67 (46.2)	69 (47.6)	0.946 (0.596–1.501)	0.814
Past diagnosis of allergies				
No	84 (57.9)	117 (80.7)	1	
Yes	17 (11.7)	28 (19.3)	0.846 (0.435–1.644)	0.621
Hemorrhoids				
No	67 (46.2)	109 (75.2)	1	
Yes	31 (21.4)	36 (24.8)	1.401 (0.793–2.473)	0.245
Long-term use of antibiotics				

No	132 (91.0)	144 (99.3)	1	
Yes	13 (9.0)	1 (0.7)	14.182 (1.830–109.901)	0.011
Exogenous hormone use				
No	139 (95.9)	142 (97.9)	1	
Yes	6 (4.1)	3 (2.1)	2.043 (0.501–8.331)	0.319
Clothing				
Cotton underwear	69 (47.6)	131 (90.3)	1	
Synthetic underwear	10 (6.9)	14 (9.7)	1.356 (0.573–3.212)	0.489
Washes underwear				
Alone	129 (89.0)	138 (95.2)	1	
With clothes	10 (6.9)	3 (2.1)	3.566 (0.960–13.247)	0.058
With socks	4 (2.8)	3 (2.1)	1.426 (0.313–6.496)	0.646
With clothes and socks	2 (1.4)	1 (0.7)	2.140 (0.192–23.879)	0.537
Use of panty liners				
No	90 (62.1)	109 (75.2)	1	
Yes	55 (37.9)	36 (24.8)	1.850 (1.117–3.064)	0.017
Vaginal douching				
No	113 (77.9)	122 (84.1)	1	
Yes	31 (21.4)	23 (15.9)	1.455 (0.801–2.644)	0.218
Solutions used for vaginal douching				
Antiseptic-containing	14 (45.2)	9 (39.1)	1	
Vinegar and water-containing	17 (54.8)	14 (60.9)	0.781 (0.261–2.336)	0.658
Frequency of vaginal douching (per month)				
≤ 10	129 (89.6)	141 (97.2)	1	
> 10	15 (10.4)	4 (2.8)	4.099 (1.326–12.669)	0.014

^aThe minority nationality included all the other ethnic groups except Han
Data are number (%), or n unless otherwise specified.

Supplementary table 2 Risk factors related to severity of AV based on univariate logistic regression analysis

Variables	Severe AV (n=50)	Light and moderate AV (n=95)	OR (95% CI)	P-Value
Nationality				
The Han nationality	48 (96.0)	91 (95.8)	1	
The minority nationality ^a	2 (4.0)	4 (4.2)	0.948 (0.168–5.363)	0.952
Marital status				
Married	40 (80.0)	75 (78.9)	1	
Unmarried	10 (20.0)	20 (21.1)	0.938 (0.400–2.195)	0.882
Education level				
High school or less	15 (30.0)	37 (38.9)	1	
College or above	35 (70.0)	58 (61.1)	1.489 (0.716–3.095)	0.287
Woman's occupation				
Manual labor	8 (16.0)	11 (11.6)	1	
Professional	30 (60.0)	61 (64.2)	0.676 (0.246–1.857)	0.448
Not working	12 (24.0)	23 (24.2)	0.717 (0.228–2.260)	0.570
Partner's occupation				
Manual labor	10 (20.0)	24 (25.3)	1	
Professional	33 (66.0)	64 (67.4)	1.237 (0.530–2.892)	0.623
Not working	7 (14.0)	7 (7.4)	2.400 (0.666–8.643)	0.181
Age at menarche (years)				
≤ 13	5 (10.0)	17 (17.9)	1	
13–15	43 (86.0)	76 (80.0)	1.924 (0.663–5.580)	0.229
> 15	2 (4.0)	2 (2.1)	3.400 (0.377–30.655)	0.275
Regular menstruation				
No	9 (18.0)	10 (10.5)	1	
Yes	41 (82.0)	85 (89.5)	0.536 (0.202–1.420)	0.210
Menstrual blood volume				
Medium	39 (78.0)	78 (82.1)	1	
Heavy	3 (6.0)	8 (8.4)	0.750 (0.188–2.986)	0.683
Light	8 (16.0)	9 (9.5)	1.778 (0.637–4.965)	0.272
Dysmenorrhea				
No	35 (70.0)	63 (66.3)	1	
Yes	15 (30.0)	32 (33.7)	0.844 (0.403–1.768)	0.652
History of pregnancy				
No	15 (30.0)	29 (30.5)	1	
Yes	35 (70.0)	66 (69.5)	1.025 (0.486–2.162)	0.948
History of delivery				
No	25 (50.0)	46 (48.4)	1	
Yes	25 (50.0)	49 (51.6)	0.939 (0.473–1.862)	0.857

History of miscarriage					
No	24 (48.0)	51 (53.7)	1		
Yes	26 (52.0)	44 (46.3)	1.256 (0.632–2.493)	0.515	
Uses contraceptive methods					
No	5 (10.0)	6 (6.3)	1		
Yes	45 (90.0)	89 (93.7)	0.607 (0.176–2.096)	0.430	
Consistent condom use					
No	43 (86.0)	71 (74.7)	1		
Yes	7 (14.0)	24 (25.3)	0.482 (0.191–1.212)	0.121	
Has used oral contraceptives					
No	43 (86.0)	79 (83.2)	1		
Yes	7 (14.0)	16 (16.8)	0.804 (0.307–2.105)	0.657	
Has used combined oral contraceptives					
No	49 (98.0)	93 (97.9)	1		
Yes	1 (2.0)	2 (2.1)	0.949 (0.084–10.728)	0.966	
Has used progestin-only pills					
No	44(88.0)	81 (85.3)	1		
Yes	6 (12.0)	14 (14.7)	0.789 (0.283–2.198)	0.650	
Has used IUD					
No	41 (82.0)	74 (77.9)	1		
Yes	9 (18.0)	21 (22.1)	0.774 (0.324–1.845)	0.563	
Use of IUD					
No	43 (86.0)	77 (81.1)	1		
Yes	7 (14.0)	18 (18.9)	0.696 (0.269–1.800)	0.455	
Duration of IUD use					
> 6 months	6 (85.7)	18 (100.0)	1		
≤ 6 months	1 (14.3)	0 (0.0)	/	/	
Natural family planning method					
No	27 (54.0)	64 (67.4)	1		
Yes	23 (46.0)	31 (32.6)	1.759 (0.871–3.550)	0.115	
Sterilization					
No	50 (100.0)	93 (97.9)	1		
Yes	0 (0.0)	2 (2.1)	/	/	
History of genital tract infections					
No	32 (64.0)	51 (53.7)	1		
Yes	18 (36.0)	44 (46.3)	0.652 (0.322–1.319)	0.234	
History of vaginitis					
No	32 (64.0)	54 (56.8)	1		
Yes	18 (36.0)	41 (43.2)	0.741 (0.366–1.501)	0.405	
History of AV					
No	49 (98.0)	90 (94.7)	1		
Yes	1 (2.0)	5 (5.3)	0.367 (0.042–3.234)	0.367	

History of sexually transmitted infections					
No	48 (96.0)	88 (92.6)	1		
Yes	2 (4.0)	7 (7.4)	0.524 (0.105–2.621)	0.431	
Age at first sexual intercourse					
≤ 18	5 (10.0)	2 (2.1)	1		
> 18	45 (90.0)	93 (97.9)	0.194 (0.036–1.036)	0.055	
Frequency of sex per month					
≤ 2	16 (33.3)	35 (37.6)	1		
3–5	20 (41.7)	39 (41.9)	1.122 (0.504–2.497)	0.778	
≥ 6	12 (25.0)	19 (20.4)	1.382 (0.543–3.515)	0.498	
≥ 2 sexual partners in the last 6 months					
No	50 (100.0)	93 (98.9)	1		
Yes	0 (0.0)	1 (1.1)	/	/	
Oral sex					
No	42 (84.0)	84 (88.4)	1		
Yes	8 (16.0)	11 (11.6)	1.455 (0.544–3.888)	0.455	
Anal sex					
No	50 (100.0)	94 (98.9)	1		
Yes	0 (0.0)	1 (1.1)	/	/	
Sex during menses					
No	24 (92.3)	52 (94.5)	1		
Yes	2 (7.7)	3 (5.5)	1.444 (0.226–9.218)	0.697	
Smoking habits					
No	47 (94.0)	91 (95.8)	1		
Yes	3 (6.0)	4 (4.2)	1.452 (0.312–6.759)	0.634	
Alcohol consumption					
No	41 (82.0)	78 (82.1)	1		
Yes	9 (18.0)	17 (17.9)	1.007 (0.413–2.458)	0.987	
History of chronic disease					
No	42 (84.0)	73 (76.8)	1		
Yes	8 (16.0)	22 (23.2)	0.632 (0.259–1.545)	0.314	
History of intrauterine surgery					
No	25 (50.0)	53 (55.8)	1		
Yes	25 (50.0)	42 (44.2)	1.262 (0.635–2.507)	0.507	
Past diagnosis of allergies					
No	28 (82.4)	56 (83.6)	1		
Yes	6 (17.6)	11 (16.4)	1.091 (0.366–3.255)	0.876	
Hemorrhoids					
No	20 (57.1)	47 (74.6)	1		
Yes	15 (42.9)	16 (25.4)	2.203 (0.916–5.298)	0.078	
Long-term use of antibiotics					

No	47 (94.0)	85 (89.5)	1	
Yes	3 (6.0)	10 (10.5)	0.543 (0.142–2.069)	0.371
Exogenous hormone use				
No	49 (98.0)	90 (94.7)	1	
Yes	1 (2.0)	5 (5.3)	0.367 (0.042–3.234)	0.367
Clothing				
Cotton underwear	22 (88.0)	47 (87.0)	1	
Synthetic underwear	3 (12.0)	7 (13.0)	0.916 (0.216–3.881)	0.905
Washes underwear				
Alone	46 (92.0)	83 (87.4)	1	
With clothes	1 (2.0)	9 (9.5)	0.200 (0.025–1.633)	0.133
With socks	3 (6.0)	1 (1.1)	5.413 (0.547–53.543)	0.149
With clothes and socks	0 (0.0)	2 (2.1)	/	/
Use of panty liners				
No	32 (64.0)	58 (61.1)	1	
Yes	18 (36.0)	37 (38.9)	0.882 (0.434–1.793)	0.728
Vaginal douching				
No	39 (78.0)	74 (78.7)	1	
Yes	11 (22.0)	20 (21.3)	1.044 (0.454–2.397)	0.920
Solutions used for vaginal douching				
Antiseptic-containing	4 (36.4)	10 (50.0)	1	
Vinegar and water-containing	7 (63.6)	10 (50.0)	1.750 (0.387–7.915)	0.467
Frequency of vaginal douching (per month)				
≤ 10	44 (88.0)	85 (90.4)	1	
> 10	6 (12.0)	9 (9.6)	1.288 (0.431–3.851)	0.651

^aThe minority nationality included all the other ethnic groups except Han
Data are number (%), or n unless otherwise specified.